May 20, 1993

Mr. T. M. Walker, P.E.
Environmental Engineer
Mobil Exploration and Producing U.S. Inc.
10735 South Shoemaker Avenue
Santa Fe Springs, CA 90670

MOST LIKELY SOURCE OF PERCHLORETHYLENE (PCE) ON THE JALK LEASE

Dear Mr. Walker,

McLaren/Hart is preparing a proposal for the soil remediation at the Jalk lease in Santa Fe Springs, California. In preparing this proposal, we reviewed a site characterization report prepared by Levine/Fricke dated December 6, 1991 ("Draft Subsurface Soil Investigation, Jalk Fee Property, 10607 Norwalk Boulevard, Santa Fe Springs, California"). The report included data showing that the soil had typical oil field chemicals, such as crude oil, and also contained lead, which presumably leached from metal pipes in an area known as the "boneyard". In addition to crude oil and lead, one area of the site contained extremely high concentrations of perchloroethylene (PCE). Since PCE is a chemical that is not used in oil fields, we investigated the possible sources of this chemical on the Jalk lease.

This letter briefly explains the significance of the findings which were presented in the Levine and Fricke report and makes recommendations on how Mobil should proceed.

PERCHLOROETHYLENE (PCE)

Perchloroethylene and related compounds that were found on the Jalk lease [trichloroethylene (TCE) and 1,2-dichloroethylene (DCE)] are chlorinated solvents used as degreasers in such industries as dry cleaning, electronics, aerospace, and metal treating. These compounds are very mobile in the environment and they are considered to be hazardous at very low concentrations in the groundwater. The drinking water standard for PCE is 5 parts per billion (ppb) compared to 2,500,000 ppb found in the soil at the Jalk lease.

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SANTA FE SPRINGS FIRE DEPARTMENT RECORD REVIEW

In an attempt to identify possible sources of the PCE at the Jalk lease, McLaren/Hart reviewed the files at the Environmental Compliance Section of the City of Santa Fe Springs Fire Department. A written request to review the file on Continental Heat Treating was submitted by FAX on Tuesday, May 11, 1993 and the file was reviewed on Wednesday, May 12th. The following is a summary of the information in the file relevant to the PCE on the Jalk lease.

Use of PCE at Continental Heat Treating

The Continental Heat Treating facility was designed in 1968 and began operation in 1969. The facility drawings (Job # 6802, PE-1) dated August 20, 1968 showed a degreaser located approximately 120 feet west of the northeast corner of the building and 30 feet south of the northern wall of the building. A pipe trench was shown going from the degreaser to the north end of the building, just west of the electrical panel. The PCE on the Jalk lease was found in the area beginning exactly where the pipe trench left the building and continuing west to the northwest corner of the building. (See Figure 1.)

In a letter to the City of Santa Fe Springs dated March 30, 1987, Continental Heat Treating reported that PCE was "used for cleaning of parts prior to heat treating." The hazardous material registration forms (February 15, 1993) reported an average PCE use of 125 gallons per day and a maximum daily use of 250 gallons per day. The Business Plan described a 500 gallon above ground PCE tank, although the location of this tank could not be determined from the information in the file.

Documented Annual PCE Waste Generation

The hazardous materials registration forms (February 15, 1993) reported that 1.5 tons of PCE are generated each year at the facility. In the March 30, 1987 letter to the City of Santa Fe Springs, Continental Heat Treating reported that the PCE was stored in a tank provided by Acto Kleen Corporation and was disposed by Acto Kleen for recycling.

Hazardous Waste Code Violations

Continental Heat Treating has operated under an Industrial Waste Permit from the Los Angeles County Sanitation District and predecessor agencies since the 1970's. Permit # 4365 was issued on January 27, 1970 and Permit #4827 was issued on November 18, 1976. These permits did not include limits or sampling requirements for PCE.

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Various inspections, violations, and complaints over the years were included in the file. These included:

- A Notice was issued on July 11, 1978 from the LA County Engineer ordering Continental Heat Treating to "clean the interceptor by July 18, 1978" and "maintain the interceptor in good operating condition at all times."

- An inspection report of April 5, 1982 noted under "Special Hazards and Conditions" that a degreaser was present in the northeast portion of the building.

- A complaint to the Fire Department was recorded on October 5, 1987 that blue-green water was being discharged to the street. This was attributed to the recent earthquake (October 4, 1987) which had broken several pieces of equipment at the site and that "a discharge similar to that of December 8, 1986 was occurring."

- A Notice of Violation (NOV) was issued on February 23, 1988 for discharging cooling tower blow down water to the street.

- The Santa Fe Springs Fire Department cited Continental Heat Treating on June 14, 1988 for failure to disclose certain materials on the 1987 plot plan.

The next section discusses possible explanations for the PCE in the soil at the Jalk lease resulting from operations at Continental Heat Treating.

POSSIBLE EXPLANATIONS

Illegal and accidental discharges of chlorinated solvents to soil are typically not reported and are not discovered until a site characterization is performed. The data from the Levine/Fricke report showing PCE at extraordinarily high concentrations, the use of large quantities of PCE on the adjoining site, the location of the PCE in soil relative to the degreaser and pipe trench on the Continental facility, and the complete absence of any use of chlorinated solvents of any kind by Mobil E & P, very strongly points to Continental Heat Treating as the source of the PCE on the Jalk lease.

The following possible explanations are based on the information we were able to find and on past experience with similar situations. We cannot say which of these explanations is most likely or whether there is another possible explanation for the observed PCE.

Intentional or Unintentional Discharge. One possible expalnation is that PCE from the degreaser or from the above ground storage tank was discharged to the ground by an employee or contractor working on site. This could have resulted from any number of activities such as overflow, spillage, a broken pipe, or an intentional discharge of waste PCE.

Fires. Three degreaser fires were reported in the Continental Heat Treating file at the Santa Fe Springs Fire Department:

- Degreaser Tank Fire (Code 6205) 87/10/02;
- Fire in Degreaser (Code 6225) 88/04/09;
- Fire in Degreaser (Code 6229) 88/08/01.

Earthquake. The file made reference to two earthquakes (December 8, 1986 and October 4, 1987) that resulted in broken equipment and discharge of chemicals. Although these references were made to the cooling tower blowdown water, it is also possible that the piping between the degreaser and the PCE storage tank were among the "several pieces of equipment" that were damaged at the same time.

RECOMMENDATIONS

As a RCRA listed F waste, PCE is regulated differently than crude oil, and the remediation of soil containing PCE follows a different set of rules than remediating soil with crude oil. Since the chemicals were found on Mobil's property, Mobil has the responsibility to remediate the soil and groundwater. However, if Mobil intends to recover the costs of cleanup from Continental Heat Treating or their insurance carrier, the cleanup must be well documented and guidelines similar to those in the National Contingency Plan (NCP) may be required to make cost recovery easier.

McLaren/Hart advises you to contact Mobil's corporate attorney immediately to advise you on the course of action in this matter. We will be prepared to provide additional technical information and advice in the context of a sound legal strategy.

Technical action may include immediate remediation of the PCE to remove the chemical from the soil before any further migration occurs. We may also recommend the installation of groundwater monitoring wells to determine if the PCE has migrated to groundwater.

Mobil may also have a reportable incident that needs to be communicated with the Regional Water Quality Control Board.

I would be happy to discuss this matter with you or with Mobil's attorneys at any time. Please call me at (714) 752-3211 if you have any questions or requests for additional information.

Sincerely,

Dennis Dineen

Dennis Dineen
Managing Principal Geoscientist
Assistant Regional Manager, Irvine

cc: Dave Barger, Mobil E & P

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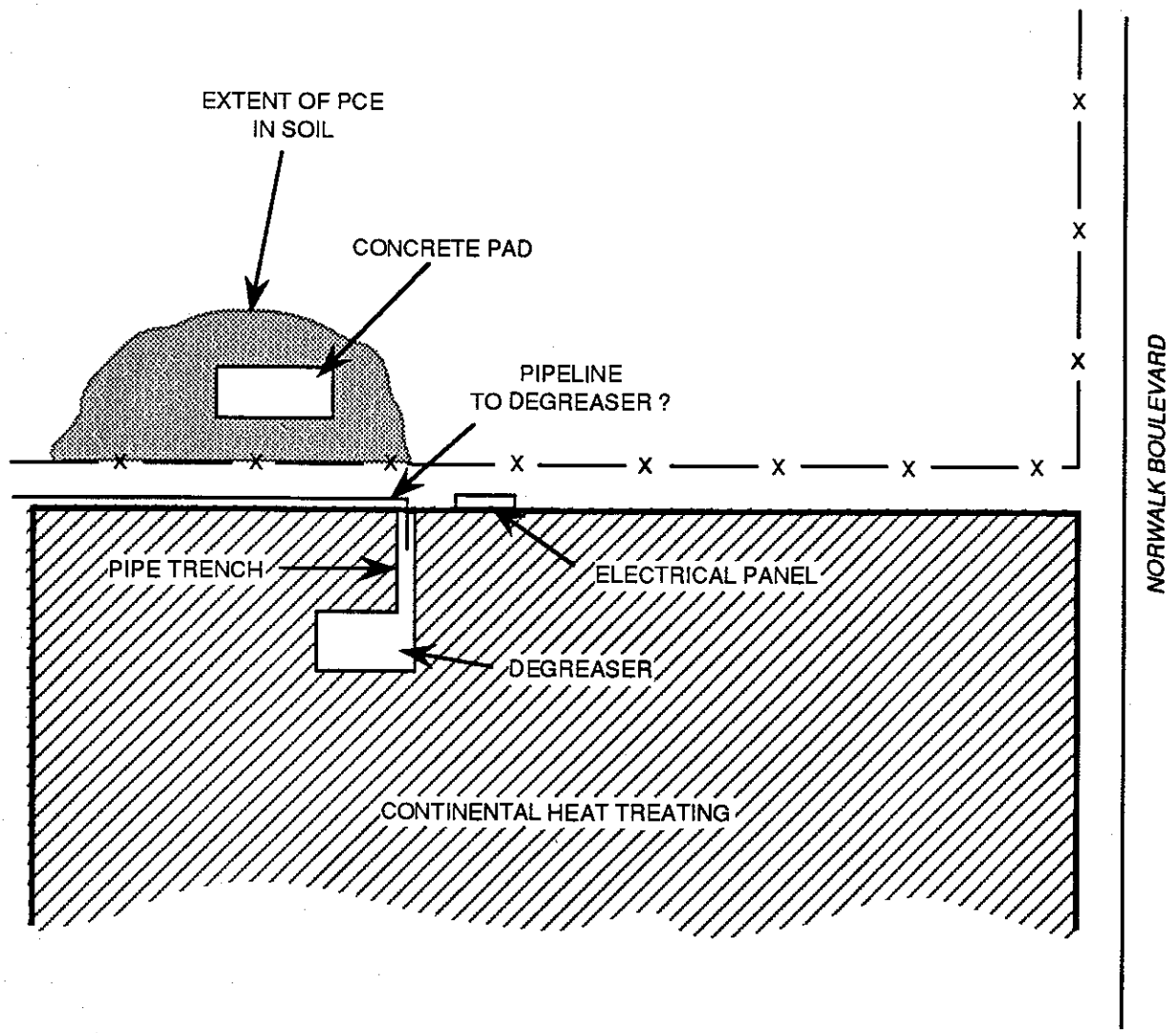

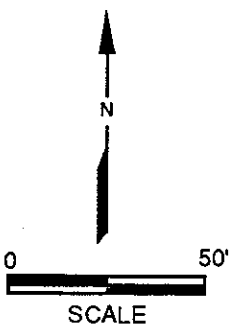

FIGURE 1
DISTRIBUTION OF
PERCHLOROETHYLENE (PCE) ON
JALK LEASE NEAR CONTINENTAL
HEAT TREATING DEGREASER

DRAWN BY SD	DATE 5-20-93	McLaren Hart ENVIRONMENTAL ENGINEERING CORPORATION	
ORDERED BY DXD	DATE		
APPROVED BY DXD	DATE 5-20-93		
APPROVED BY	DATE	DRAWING NO. S9305114	